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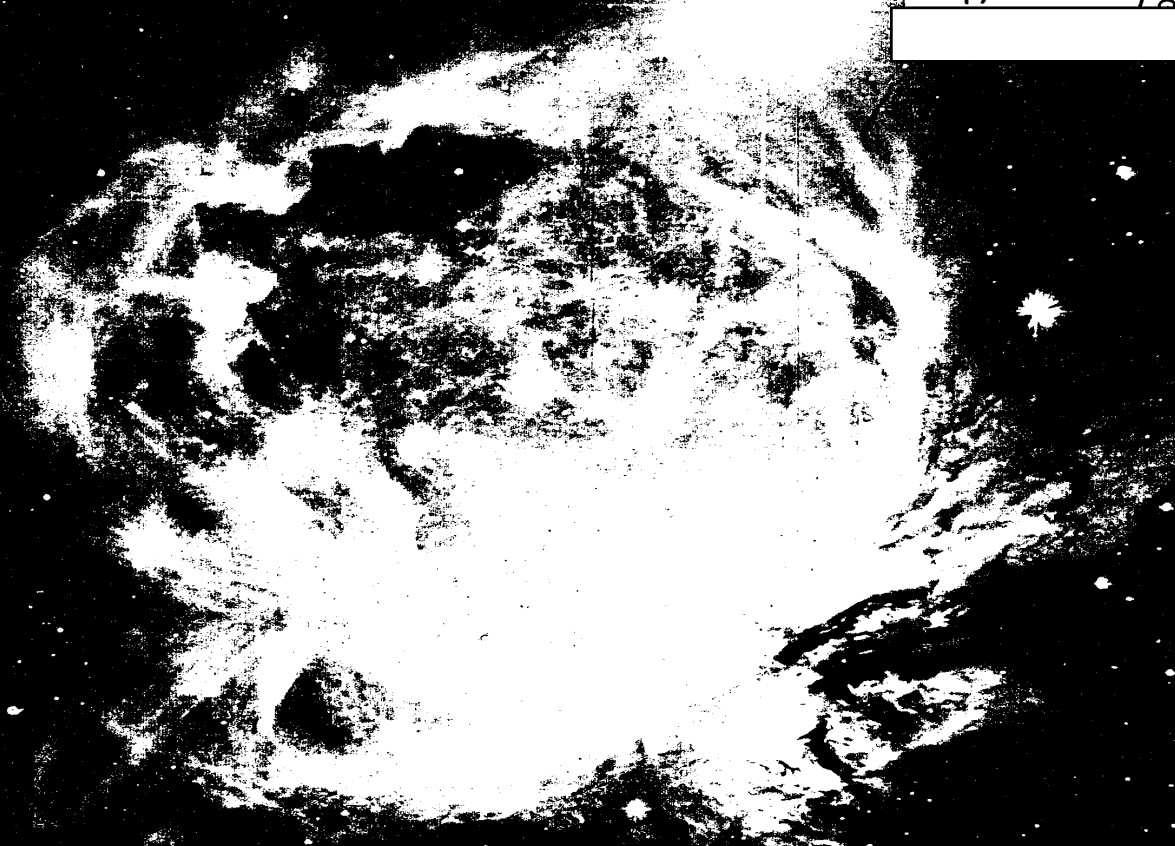
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OSI-SD-KH/64-8
November 1964

No. Pages 22

Copy No. 78



SCIENTIFIC INTELLIGENCE DIGEST

Office of
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**CENTRAL
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NEW 8-DISH ANTENNA ARRAYS
AT SERPUKHOV RADIOASTRONOMY CENTER

25X1A

[REDACTED]
General Sciences Division
OSI/CIA

Two distinctive new antenna arrays under construction at Serpukhov probably will improve the observatory's capabilities in solar, lunar, and planetary radioastronomy. In some applications the arrays when used together may outperform the Serpukhov 22-meter dish, which is one of the best radiotelescopes of its type in the world.

could complement the Mills cross radiotelescope in the centimeter wavelengths in studies of solar radio emission and should improve the observatory's capabilities for observations in the decimeter and centimeter wavelengths by enabling high resolution observations to be made at a wider range of frequencies.

25X1D The antenna arrays, which consist of two rows of four five-meter dishes, have over-all dimensions of [REDACTED]. The arrays are similar to, but smaller than, those at the Yevpatoriya space radio facility in the Crimea. They probably will be mounted [REDACTED] apart in an east-west line parallel to the completed arm of the Mills cross radiotelescope.

Astronomers at Serpukhov probably built eight-dish arrays instead of individual dishes of comparable performance in order to simplify engineering problems and reduce costs. The eight-dish arrays at Yevpatoriya were constructed for the same reason. The Crimean instruments, built in 1960, are about three times the size of those at Serpukhov. Both the Crimean and Serpukhov sets of arrays and the 22-meter dish reportedly have similarities. [REDACTED]

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25X1D Used individually or as a pair, the arrays probably will be employed in the observatory's program of lunar and planetary radioastronomy. When used together as an interferometer, they

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MILLS CROSS RADIOTELESCOPE

8 DISH ARRAYS

PROBABLE MOUNTINGS

SERPUKHOV 8 - DISH ARRAYS
AND PROBABLE MOUNTINGS

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25X1D

25X1B

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**CHINESE COMMUNIST STATIC TEST CENTER
AT CHANG-HSIN-TIEN**

25X1A

[REDACTED]
Ballistic Missiles and Space Division
OSI/CIA
and

25X1A

[REDACTED]
Space Technology Laboratories

SUMMARY AND CONCLUSIONS

Preliminary analysis of the installations at the Chang-hsin-tien Missile Research and Development Center (CHTMRDC) near Peiping indicates that the Chinese Communists currently have adequate missile and engine static test facilities to support a native IRBM/ICBM development program. Construction of the facility probably was initiated in the

25X1D

[REDACTED] Construction and progressive activation of three separate vertical static test stands and a horizontal test stand continued through the [REDACTED] photography confirms [REDACTED] completion date of the facility.

25X1D
25X1D

A single position stand of adequate size to support captive firing tests of liquid booster stages in the large ICBM class was constructed during [REDACTED]

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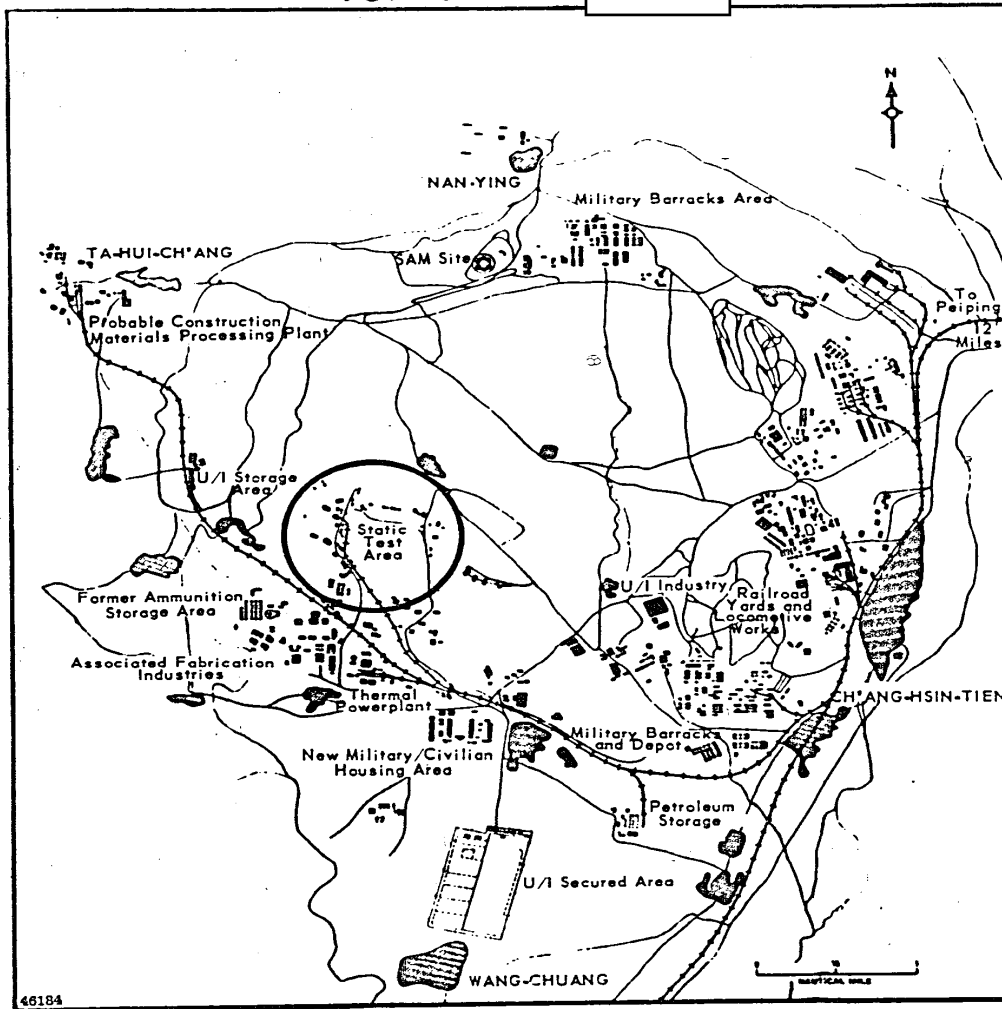
25X1D

and possibly was operational as early as [REDACTED] All of the ancillary test facilities required to support an integrated surface-to-surface missile (SSM) development program have not yet been identified at the CHTMRDC static test area. However, presently unidentified installations or future construction could satisfy these support requirements. While it seems apparent that design of the test facility and initial stages of construction were carried out with Soviet technical aid, the major heavy construction and site completion was an independent Chinese effort. The construction of CHTMRDC demonstrates that the Chinese are working toward the development of a liquid booster system capable of supporting an IRBM/ICBM or space booster program of sizable proportions.

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CHINA

Figure I. Ch'ang-hsin-tien Complex

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DISCUSSION

Description of Facility

The complex which comprises the CHTMRDC is approximately 12.5 nautical miles west-southwest of Peiping near Chang-hsin-tien (see figure). It is served by a single-track spur and an all-weather road from Chang-hsin-tien, both of which connect with the main rail line and road to Peiping. Within a 2.5 nautical-mile radius of the center of the complex are a number of installations which are possibly functionally related to the CHTMDRC at the present time.

25X1D The static test area measures approximately 2500 by 1000 feet. The area is served by a rail spur and an all-weather road, both of which connect with the other installations in the CHTMRDC area. In a security fence/wall was under construction.

25X1D Facilities in the static test area include a test stand area, a storage/workers' housing area, two possible fueling areas, a possible research and development/headquarters area, and about 15 miscellaneous support buildings. A possible liquid oxygen manufacturing area also is revealed in photography. The test stand area features three large vertical static test stands and their associated support buildings. Designated A, B, and C (from north to south), these test stands were constructed on the west side of the ridge to take advantage of the high ground and the deep natural ravine. Located on the west side of the ravine opposite Test Stand A and B is a group of small structures which has been

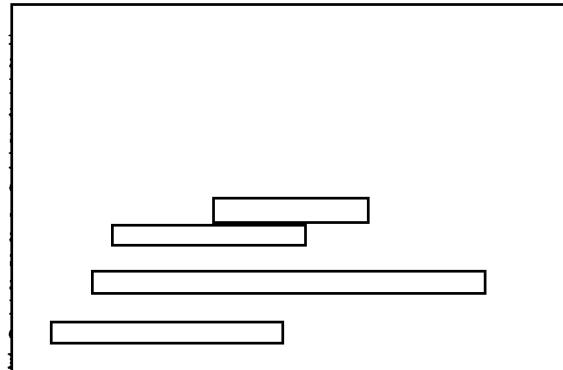
identified as a horizontal test complex (see figure).

Development History

photography in showed that test complexes A and B as well as a major portion of the center's roads, utilities, and supporting facilities were complete or nearly complete, but major construction apparently had not started at Complex C. Major ground scarring was evident at the site of the horizontal test complex. Between

additional supporting facilities were constructed in the test areas, and construction of Test Stand C was initiated.

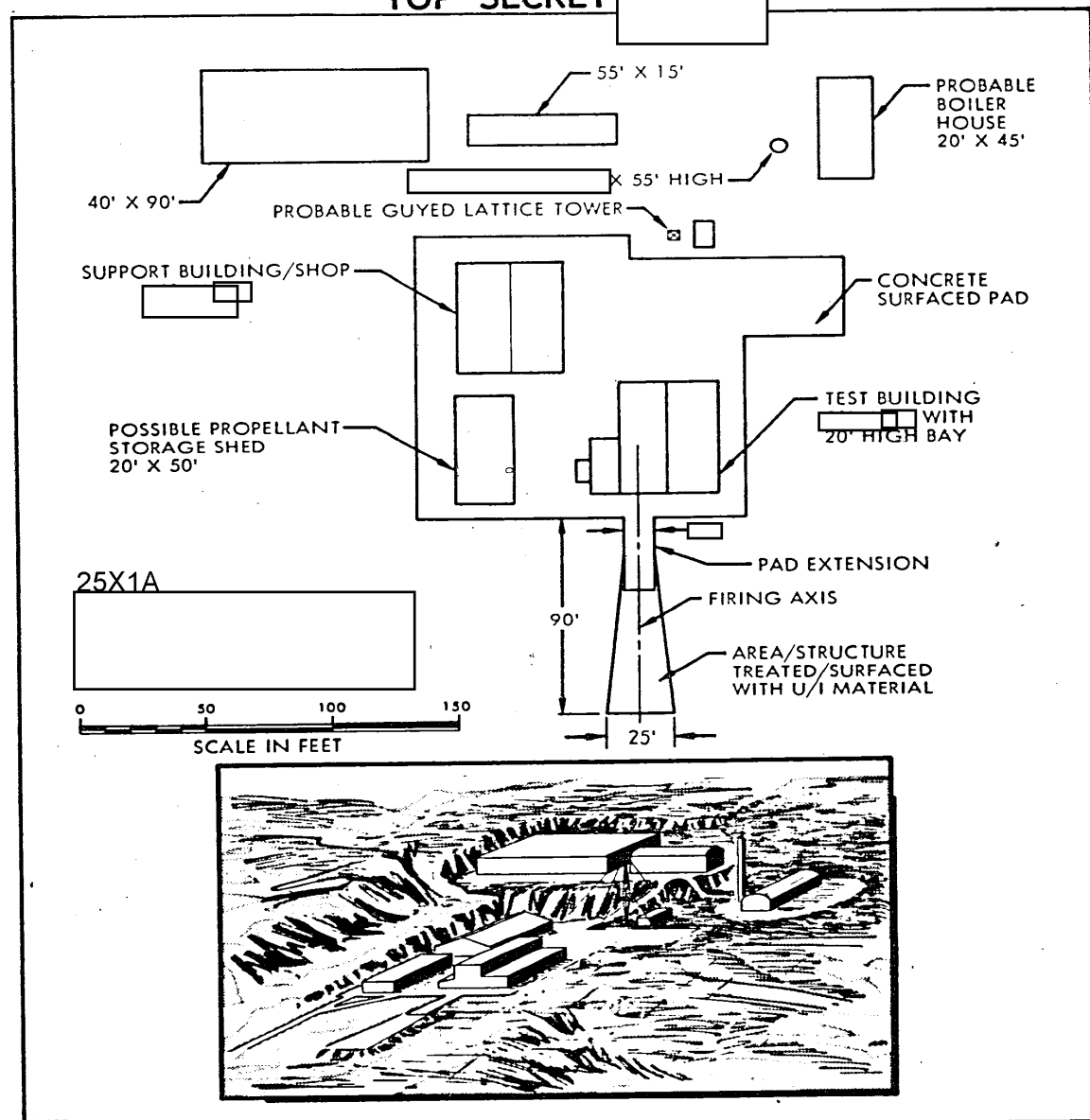
photographic coverage of indicates that Complex C probably was complete and that security fencing around the entire static test installation was under construction. Subsequent high quality coverage in confirms that construction was complete at all of the test stands.



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CHINA

Figure 2. Ch'ang-hsin-tien Missile Research and Development Center
Horizontal Test Complex

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25X1B

25X1D

The operation observed at the horizontal test complex may have been such a test.

Test Stand Characteristics

Test Stand A (see figure) appears to be an enclosed single position vertical stand intended for testing of liquid rocket engines or thrust chambers. The placement and height of a solidly built structure at the rear of the stand as well as the height of the stand superstructure generally preclude, from an access and handling standpoint, the installation of missile stages within the test stand. The configuration of the stand flame deflec-

Test Area Characteristics

25X1D

25X1B

25X1B

25X1A

25X1B

than production test activities. However, production articles from nearby facilities could be transported easily and subsequently hot-fired at CHTMRDC. On the other hand, a number of smaller structures of unidentified function are uniquely sited within the test area. These may function as cold flow or hot firing facilities for propulsion system components.

Limited amounts of propellant may be stored forward of the stand on either side of the stand exhaust flume. The types of propellants utilized at the stand have not been determined, but propellants with major toxic characteristics are not indicated.

Test Stand B (see figure) appears to be an enclosed dual position vertical test stand intended for testing liquid rocket engines or stages. Rail service is provided to the stand pad, but whether it is provided to the stand itself is not

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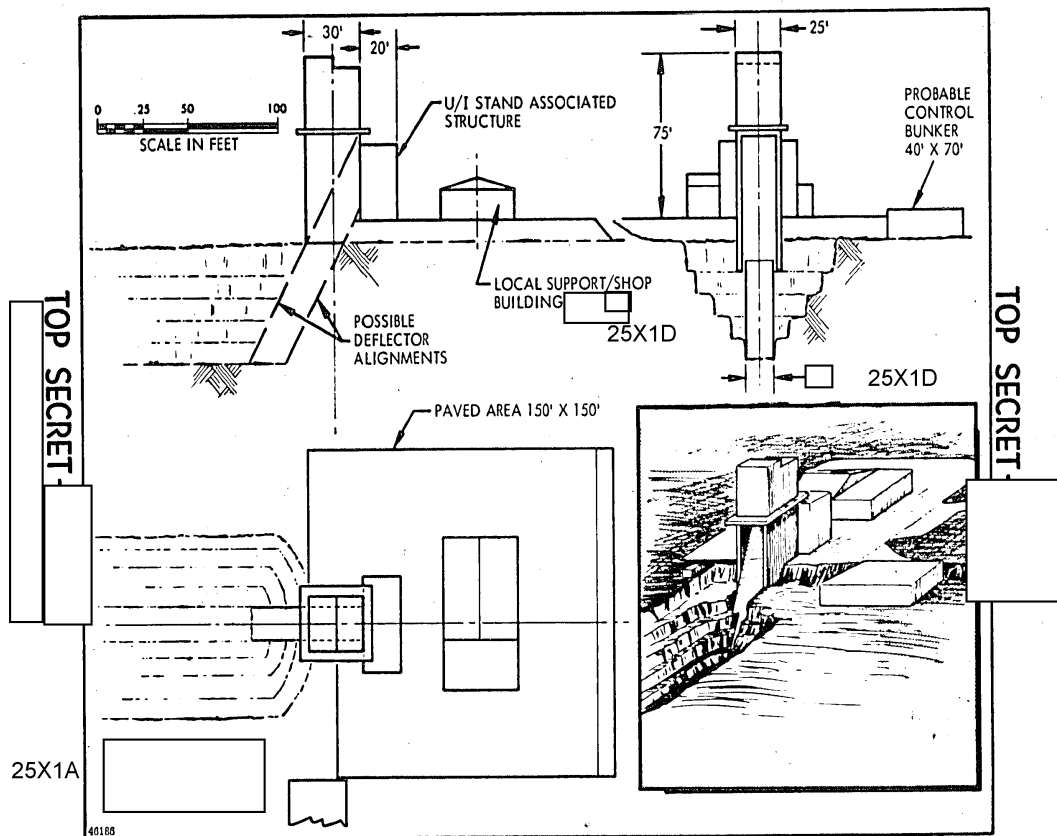


Figure 3. Ch'ang-hsin-tien Missile Research and Development Center
Test Stand A

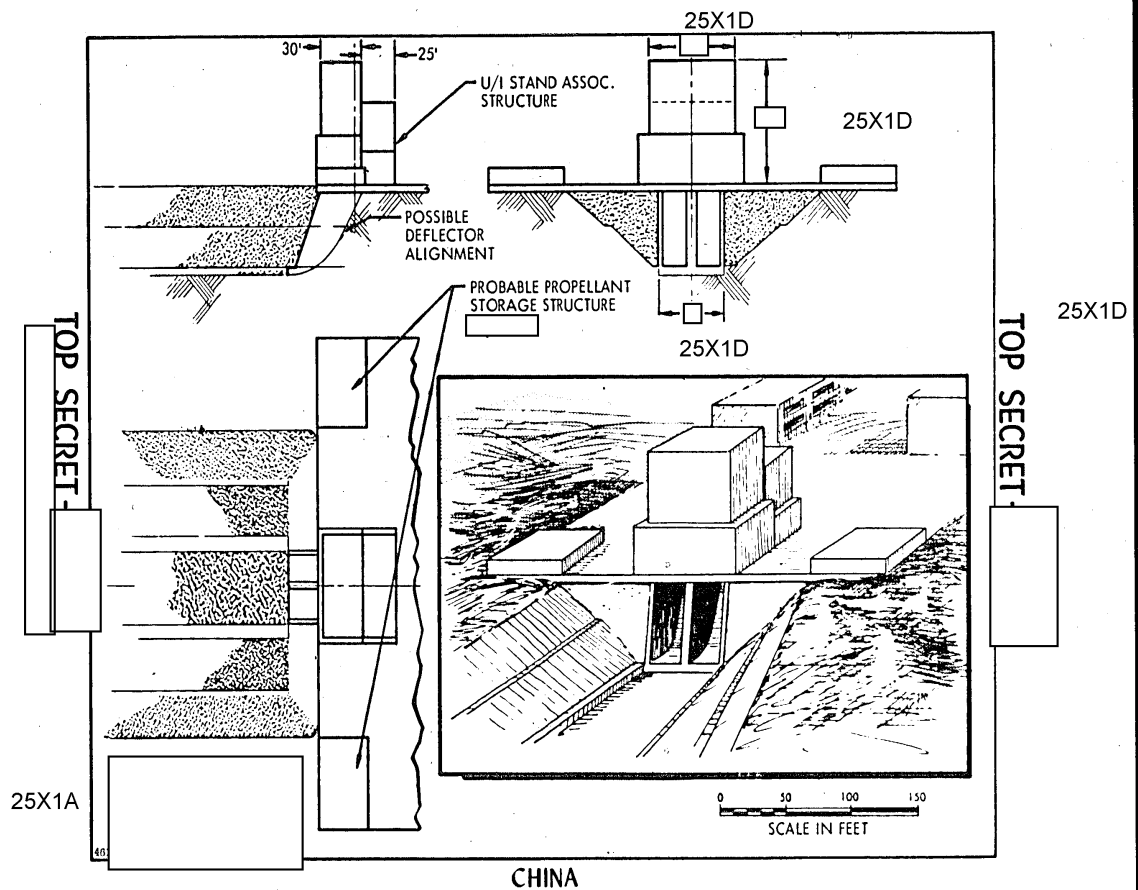


Figure 4. Ch'ang-hsin-tien Missile Research and Development Center
Test Stand B

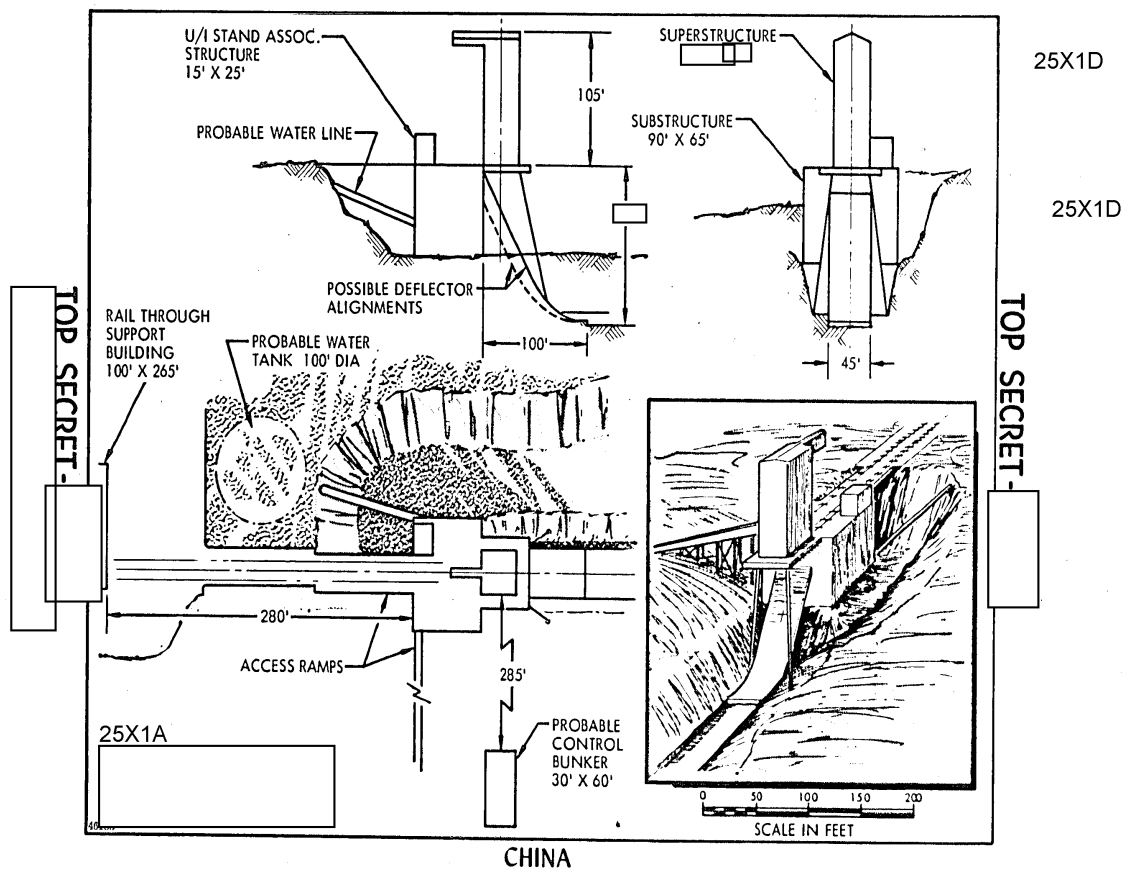


Figure 5. Ch'ang-hsin-tien Missile Research and Development Center
Test Stand C

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known. Associated with the stand are two probable propellant storage areas. As at Stand A, a structure of unknown function is attached to the rear of the stand. Test Stand B appears to incorporate two firing positions with a vertical center support between them.

Comments regarding missile stage emplacement problems and propellant combinations for Stand A also apply in the case of Stand B.

25X1B

25X1B

Test Stand C (see figure) appears to be an enclosed single position vertical stand intended for the testing of missile stages.



itself is integrated with a solid, free-standing substructure. The installation provides for the convenient erection and stand installation of horizontally delivered missile stages. The separation of the observation/control bunker and the support building from the test stand is significantly greater at Complex C than at the other CHTMRDC test complexes.

the building may be a relatively flexible steel-framed and -clad structure. Such a structure may be more blast resistant from a catastrophic failure standpoint when exposed to moderately low overpressures than the rigid masonry support buildings at Complex B.

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25X1B

25X1D

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PROBABLE RADIOASTRONOMY STATION IN KHARKOV AREA

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[REDACTED]
General Sciences Division
OSI/CIA

A probable radioastronomy facility is being constructed along the road from Chuguyev to Izyum, southeast of Kharkov which may be operated jointly by the Institute of Radiophysics and Electronics of the Ukrainian Academy of Sciences and the Kharkov Planetary Institute.

The installation north of the Chuguyev-Izyum highway was under construction in

[REDACTED] and roads and several groups of buildings had been completed. In [REDACTED]

[REDACTED] large radio interferometer. The north-south and east-west orientations of the interferometer arms (each about 1 mile long) suggest that it is intended for radio-astronomical use. However, the significance of the installation has not yet been determined. [REDACTED]

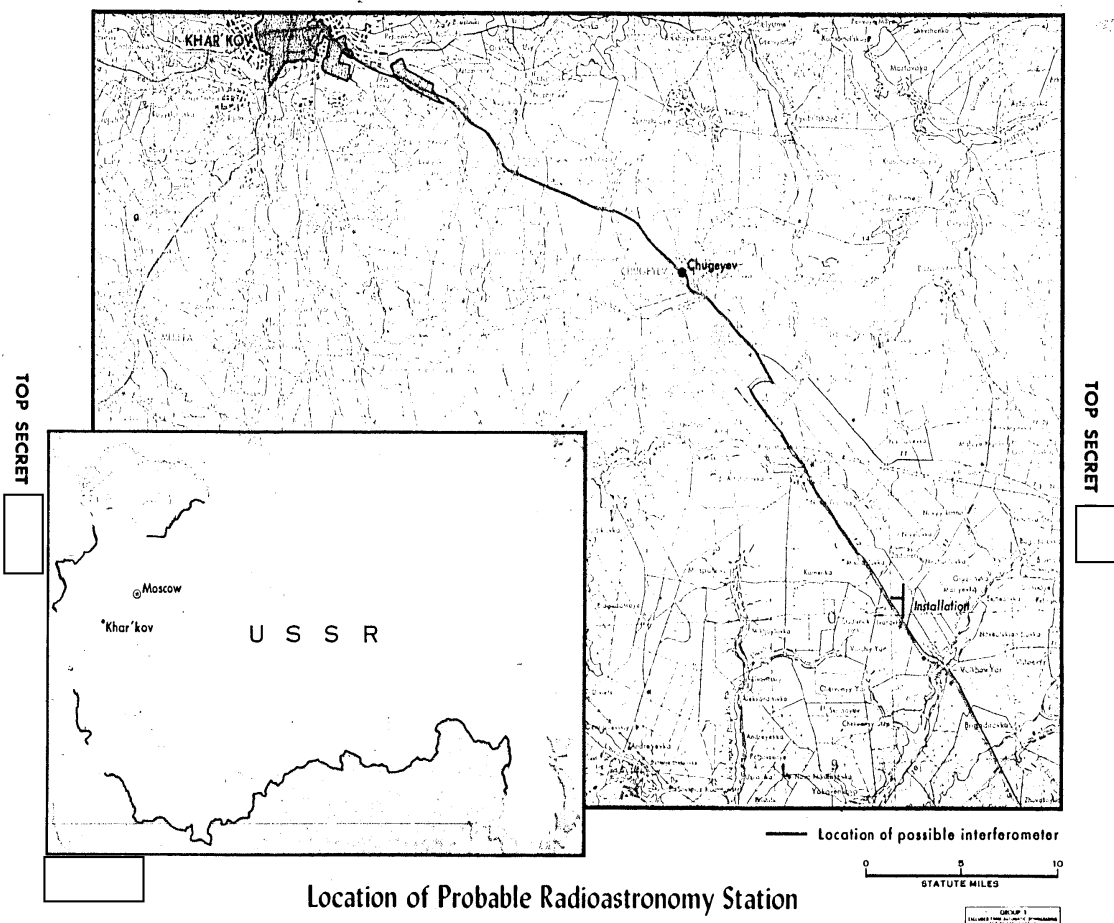
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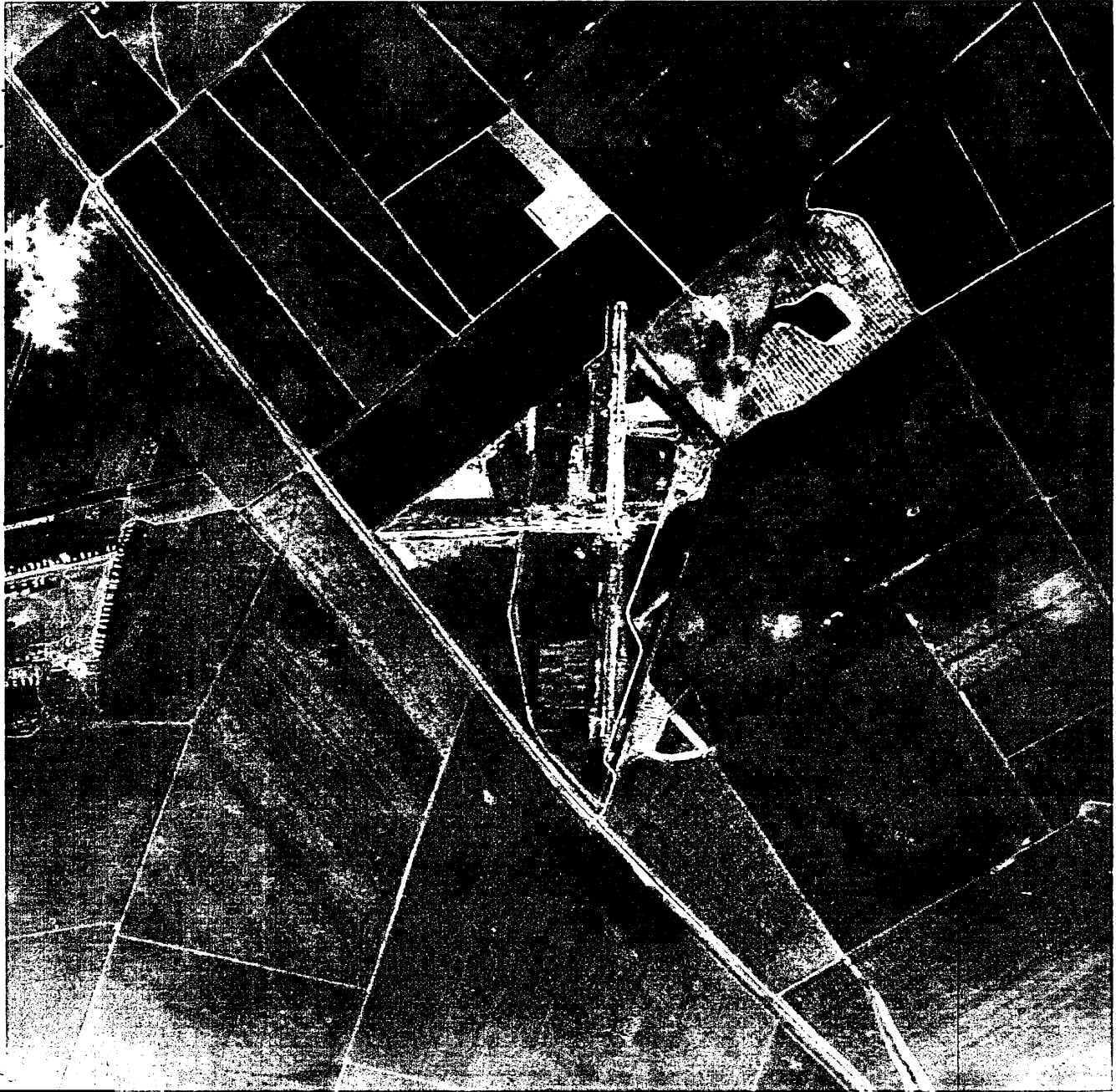
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☐ Probable Radioastronomy Station in Kharkov Area

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